

Laucks

Testing Laboratories, Inc.

940 South Harney Street, Seattle, Washington 98108 (206)767-5060

Chemistry, Microbiology, and Technical Services



Certificate

CLIENT Kaiser Aluminum
Trentwood Works
P.O. Box 15108
Spokane, WA 99215
ATTN: Phil Williams

LABORATORY NO. 88465

DATE Mar. 29, 1985

REPORT ON

WATER

SAMPLE
IDENTIFICATION

Submitted 2/11/85 and identified as shown:

TESTS PERFORMED
AND RESULTS:

- 1) MW-1 Kaiser JM 2/7 0850
- 2) MW-2 Kaiser JM 2/7 1300
- 3) MW-3 Kaiser Trentwood 2/7 JJM/KM 1515
- 4) MW-4 Kaiser Trentwood 2/6 JJM/KM 1100
- 5) MW-5 Kaiser Trentwood 2/7 JJM/KM 1730
- 6) MW-6 Kaiser Trentwood 2/6 JJM/KM 1545
- 7) Transfer Blank

parts per billion (ug/L)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Antimony	L/5.	L/5.	L/5.	L/5.
Arsenic	L/5.	5.	L/5.	L/5.
Beryllium	L/2.	L/2.	L/2.	L/2.
Cadmium	L/0.2	L/0.2	L/0.2	L/0.2
Chromium	L/2.	L/2.	L/2.	L/2.
Copper	L/5.	L/5.	L/5.	L/5.
Lead	L/5.	L/5.	L/5.	L/5.
Mercury	L/1.	L/1.	L/1.	L/1.
Nickel	L/5.	L/5.	L/5.	L/5.
Selenium	L/5.	L/5.	L/5.	L/5.
Silver	L/0.5	L/0.5	L/0.5	L/0.5
Thallium	L/5.	L/5.	L/5.	L/5.
Zinc	11.	2.	L/1.	7.
Total Cyanide	L/5.	L/5.	L/5.	L/5.



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	<u>parts per billion (ug/L)</u>		
	<u>5</u>	<u>6</u>	<u>7</u>
Antimony	L/5.	L/5.	L/5.
Arsenic	L/5.	5.	L/5.
Beryllium	L/2.	L/2.	L/2.
Cadmium	L/0.2	L/0.2	L/0.2
Chromium	L/2.	L/2.	L/2.
Copper	L/5.	L/5.	L/5.
Lead	L/5.	L/5.	L/5.
Mercury	L/1.	L/1.	L/1.
Nickel	L/5.	L/5.	L/5.
Selenium	L/5.	L/5.	L/5.
Silver	L/0.5	L/0.5	L/0.5
Thallium	L/5.	L/5.	L/5.
Zinc	3.	12.	4.
Total Cyanide	L/5.	L/5.	L/5.

Note: Quadruplicate analyses are indicated by the letters A, B, C, and D.

		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Total Organic Carbon,					
parts per million (mg/L)	- A	2.1	4.6	6.0	3.8
	- B	2.0	5.1	5.8	2.8
	- C	1.7	4.5	5.5	3.1
	- D	2.1	5.6	5.0	3.4
Total Organic Halogens,					
parts per million (mg/L)	- A	L/0.02	L/0.02	0.025	0.022
	- B	L/0.02	L/0.02	0.025	0.025
	- C	L/0.02	0.048	0.025	0.026
	- D	L/0.02	0.051	0.025	0.029



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		1	2	3	4
pH, glass electrode @ 25°C	- A	8.1	7.9	7.9	7.9
	- B	8.5	7.9	7.9	7.9
	- C	8.2	7.9	7.9	7.8
	- D	8.2	7.9	7.9	7.9
Specific conductance, micromhos/cm @ 25°C	- A	130.	210.	210.	220.
	- B	150.	220.	230.	220.
	- C	170.	220.	220.	220.
	- D	160.	220.	220.	220.

		5	6	7
Total Organic Carbon, parts per million (mg/L)	- A	4.2	4.4	4.0
	- B	4.1	4.5	---
	- C	3.9	4.8	---
	- D	3.8	4.0	---
Total Organic Halogens, parts per million (mg/L)	- A	0.024	0.026	0.029
	- B	0.029	0.024	---
	- C	0.026	0.022	---
	- D	0.029	0.026	---
pH, glass electrode @ 25°C	- A	7.9	7.9	5.5
	- B	7.9	7.8	---
	- C	7.9	7.8	---
	- D	7.9	7.9	---
Specific conductance, micromhos/cm @ 25°C	- A	230.	220.	1.7
	- B	230.	220.	---
	- C	220.	230.	---
	- D	230.	230.	---



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parts per million (mg/L)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Chloride	15.	1.	1.	1.
Nitrate as N	0.16	1.7	1.7	1.6
Calcium	11.	40.	39.	42.
Magnesium	7.	15.	14.	14.
Sulfate as SO ₄	8.	13.	11.	11.
Total Phosphate as P	L/0.005	L/0.005	L/0.005	L/0.005
Ortho Phosphate as P	L/0.005	L/0.005	L/0.005	L/0.005
Iron	0.30	0.210	0.06	0.08
Hardness	72.	150.	150.	150.
Total Suspended Solids	250.	14.	1.	6.

	<u>5</u>	<u>6</u>	<u>7</u>
Chloride	L/1.	1.	---
Nitrate as N	1.5	1.8	L/0.05
Calcium	45.	48.	L/1.
Magnesium	17.	15.	L/0.5
Sulfate as SO ₄	17.	10.	---
Total Phosphate as P	L/0.005	L/0.005	L/0.005
Ortho Phosphate as P	L/0.005	L/0.005	---
Iron	0.23	0.11	0.09
Hardness	160.	160.	---
Total Suspended Solids	38.	1.	---

parts per billion (ug/L)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
PCB 1016	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1221	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1232	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1242	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1248	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1254	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1260	L/0.5	L/0.5	L/0.5	L/0.5



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parts per billion (ug/L)

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
1,1,1-trichloroethane	L/1.	L/1.	L/1.	L/1.
Methylene Chloride	10.2	L/10.	L/10.	34.5
Trichloroethylene	L/1.	L/1.	L/1.	L/1.
Carbon Tetrachloride	L/5.	L/5.	L/5.	L/5.
Toluene	L/1.	L/1.	L/1.	L/1.
	<u>5</u>	<u>6</u>	<u>7</u>	<u>Blank</u>
PCB 1016	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1221	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1232	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1242	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1248	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1254	L/0.5	L/0.5	L/0.5	L/0.5
PCB 1260	L/0.5	L/0.5	L/0.5	L/0.5
1,1,1-trichloroethane	L/1.	L/1.	L/1.	L/1.
Methylene Chloride	L/10.	18.5	5.8	L/10.
Trichloroethylene	L/1.	L/1.	L/1.	L/1.
Carbon Tetrachloride	L/5.	L/5.	L/5.	L/5.
Toluene	L/1.	L/1.	3.3	L/1.

Key

L/ indicates "less than"

Respectfully submitted,

Laucks Testing Laboratories, Inc.

cc: John Edwards
Sweet Edwards Associates

J. M. Owens

JMO:veg



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APPENDIX A

Matrix Spike/Matrix Spike Duplicate Report

<u>ug/L</u>									
<u>Sample</u>	<u>Analyte</u>	<u>Spike Added</u>	<u>Sample Result</u>	<u>MS Result</u>	<u>% Rec</u>	<u>MSD Result</u>	<u>% Rec</u>	<u>RPD</u>	<u>QC Limits</u> <u>RPD</u> <u>REC</u>
5	Cyanide	50.	L/5.	52.	104.	54.	108.	4.	0-13 72-114
1	Arsenic	20.	L/5.	25.	125.	25.	125.	0.	
1	Selenium	20.	L/5.	25.	125.	20.	100.	22.	
6	Thallium	25.	L/5.	37.	148.	38.	152.	2.7	
1	Zinc	5.	11.	14.	60.	15.	80.	28.	
3	Mercury	10.	L/5.	10.	100.	11.	110.	10.	
1	Cadmium	2.5	L/0.2	1.8	72.	1.7	68.	6.	
1	Copper	25.	L/5.	20.	80.	20.	80.	0.	
1	Antimony	50.	L/5.	38.	76.	40.	80.	5.	
1	Lead	25.	L/5.	28.	112.	29.	116.	3.	
1	Chromium	25.	L/2.	30.	120.	28.	112.	7.	
1	Beryllium	10.	L/2.	13.	130.	12.	120.	8.	
1	Nickel	25.	L/5.	26.	104.	25.	100.	4.	
1	Silver	1.	L/0.5	0.72	72.	0.72	72.	0.	

<u>mg/L</u>									
3A	TOC	10.	6.0	17.	110.	17.	110.	0.	0-9 83-120
6A	TOC	10.	3.8	14.	102.	15.	112.	9.	0-0 83-120
1	Total Phos.	0.05	L/0.005	0.050	100.	0.048	96.	4.	
1	Ortho Phos.	0.05	L/0.005	0.055	110.	0.055	110.	0.	
1	Nitrate	0.1	0.16	0.28	120.	0.28	120.	0.	
1A	TOX	0.10	L/0.02	0.12	120.	0.12	120.	0.	
3A	TOX	0.10	L/0.02	0.077	77.	0.074	74.	4.	
4C	TOX	0.10	0.026	0.085	59.	0.103	77.	26.	
6D	TOX	0.10	0.026	0.071	45.	0.083	57.	24.	
2	Chloride	5.	1.	5.	80.	5.	80.	0.	
1	Calcium	5.0	11.	15.	80.	16.	100.	22.	
1	Magnesium	2.0	7.5	9.0	75.	8.9	70.	7.	
1	Dulfate	10.	8.	18.	100.	17.	90.	10.	
2	Iron	0.10	0.21	0.30	90.	---	---	---	



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APPENDIX B

Replicate Quality Control Report

<u>Sample #</u>	<u>Analyte</u>	<u>ug/L</u>		<u>Relative Error, %</u>
		<u>Replicate 1</u>	<u>Replicate 2</u>	
5	Methylene Chloride	L/10.	L/10.	(0.)
5	1,1,1-Trichloroethane	L/1.	L/1.	(0.)
5	Carbon Tetrachloride	L/5.	L/5.	(0.)
5	Trichloroethene	L/1.	L/1.	(0.)
5	Toluene	L/1.	L/1.	(0.)

parentheses () indicate absolute error.



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APPENDIX C

Spike Quality Control Report

Sample #	Analyte	ug/L			
		Sample Found	Spike Level	Samp & Spike Found	% Recovery
1	Methylene Chloride	L/10.	25.	21.4	86.
1	1,1,1-Trichloroethane	L/1.	12.2	12.6	103.
1	Carbon Tetrachloride	L/5.	11.6	12.4	107.
1	Trichloroethene	L/1.	11.6	11.4	98.
1	Toluene	L/1.	12.2	12.9	106.
7 spk I	Arochlor 1260	L/0.5	5.00	3.06	61.2
7 spk II	Arochlor 1260	L/0.5	5.00	4.32	86.3



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APPENDIX D

Surrogate Recovery Quality Control Report

Listed below are surrogate (chemically similar) compounds utilized in the analysis of volatile and organic compounds. The surrogates are added to every sample prior extraction and analysis to monitor for matrix effects, purging efficiency, and sample processing errors. The control limits represent the 95% confidence interval established in our laboratory through repetitive analysis of these sample types.

parts per billion (ug/L)

<u>Sample No.</u>	<u>Surrogate Compound</u>	<u>Spike Level</u>	<u>Spike Found</u>	<u>% Recovery</u>	<u>Control Limit</u>
1	dibutylchloredate	1.00	0.696	69.6	48-136
2	dibutylchloredate	1.00	0.789	78.9	48-136
3	dibutylchloredate	1.00	0.871	87.1	48-136
4*	dibutylchloredate	1.00	0.990	99.0	48-136
5	dibutylchloredate	1.00	0.893	89.3	48-136
6	dibutylchloredate	1.00	0.803	80.3	48-136
7	dibutylchloredate	1.00	0.813	81.3	48-136
7 spike I	dibutylchloredate	1.00	0.842	84.2	48-136
7 spike II	dibutylchloredate	1.00	0.999	99.9	48-136
Blank	dibutylchloredate	1.00	0.874	87.4	48-136

* inorganic plastic bottle



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parts per billion (ug/L)

<u>Sample No.</u>	<u>Surrogate Compound</u>	<u>Spike Level</u>	<u>Spike Found</u>	<u>% Recovery</u>	<u>Control Limit</u>
Field Blank	2-Bromo-1chloro Propane	23.7	23.5	0.99	89-112
1	2-Bromo-1chloro Propane	23.7	26.9	113.*	89-112
1 spike	2-Bromo-1chloro Propane	23.7	23.7	100.	89-112
2	2-Bromo-1chloro Propane	23.7	22.1	93.	89-112
3	2-Bromo-1chloro Propane	23.7	23.8	100.	89-112
4	2-Bromo-1chloro Propane	23.7	25.1	106.	89-112
5	2-Bromo-1chloro Propane	23.7	22.8	96.	89-112
5 dupe	2-Bromo-1chloro Propane	23.7	22.7	96.	89-112
6	2-Bromo-1chloro Propane	23.7	26.1	110.	89-112
7	2-Bromo-1chloro Propane	23.7	24.7	104.	89-112

* improper integration



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